## REMARKS

Claims 6-18 were pending in the application. Claims 7, 9, 10 and 11 have been cancelled. Claims 12, 13, 14, and 16 have been amended. A "Version With Markings to Show Changes Made," is attached hereto as Appendix A. Accordingly, claims 6, 8 and 12-18 will be pending upon entry of the instant amendments presented herein. For the Examiner's convenience, all of the pending claims are listed in Appendix B.

In compliance with 37 C.F. R. § 1.72(b), an Abstract for the above-identified application is being submitted concurrently on a separate page.

Support for the amendments to the claims can be found throughout the specification including the originally filed claims. No new matter has been added. Any amendments to and/or cancellations of the claims should in no way be construed as an acquiescence to any of the Examiner's rejections and was done solely to expedite the prosecution of the application. Applicants reserve the right to pursue the claims as originally filed in this or a separate application(s). Rejections pertaining to cancelled claims will not be addressed.

***Rejection of claims 6-18 under 35 U.S.C. §101 and §112, first paragraph***

The rejection of claims 6-18 under 35 U.S.C. § 101 and § 112, first paragraph were maintained on the ground that the claimed invention is not supported by either a specific and substantial utility or a well established utility. Applicants respectfully traverse this rejection.

Applicants respectfully submit that a specific and substantial asserted utility is immediately apparent from Applicants' specification and the knowledge in the art at the time of Applicants' invention. Specifically, the claimed nucleic acid molecules encode a Type I membrane protein that was isolated from an epidermoid carcinoma cell line, KB (see page 8, Table 1, and page 35, lines 22-23 of the specification). Those skilled in the art understand that membrane proteins play important roles, for example, as signal receptors, ion channels, and transporters in the material transportation and the information transmission which are mediated by the cell membrane. The importance of membrane proteins in physiological homeostassis has led to the search for new genes encoding further members of this functionally important class of molecules. Accordingly, in the specification at page 7, lines 9-10 and page 42 line 26, Applicants have described by reference the "Signal Sequence Detection Method" (described

fully in Yokoyama-Kobayashi, M. et al., Gene 163: 193-196 (1995) which was utilized to selectively identify and characterize those polynucleotides which encode for transmembrane proteins. The above-referenced selective "Signal Sequence Detection Method" assures that the resulting polynucleotide sequences, disclosed in Applicants' application, encode proteins that comprise certain structural and functional features, e.g., hydrophobic and hydrophilic profiles, which are intrinsic to the class of genes which encode proteins encoding a transmembrane domain. Thus, specific structural or functional information of the proteins corresponding to the polynucleotide sequences of the invention is disclosed a priori.

Indeed, as evidenced by GenBank Accession Number NM_005765 (Appendix C), the presently claimed nucleic acid molecules encode a membrane polypeptide that is associated with the transmembrane sector of the vacuolar (V-type) ATPases. V-ATPases contain multiple subunits and play a fundamental role in energy conservation, secondary active transport, the acidification of intracellular compartments, and cellular homeostasis.

Thus, Applicants respectfully submit this Appendix as an example of post-filing evidence which supports the credibility of Applicants' assertions of the biologically activity and/or utility of the claimed nucleic acid molecules. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections under 35 U.S.C. §§ 101 and 112, first paragraph.

***Rejection of claims under 35 U.S.C. § 112, second paragraph***

Claims 7 and 10 were rejected as vague and indefinite in recitation of the phrase "fragment." Claim 9 was rejected as indefinite for reciting the term "allelic variant." Further, Claim 11 was rejected as vague and indefinite for reciting the phrase "stringent conditions." Applicants respectfully traverse these rejections, but in the interest of expediting prosecution, claims 7 and 9-11 have been cancelled. Withdrawal of these rejections is therefore respectfully requested. Applicants specifically reserve the right to pursue the subject matter of these claims in one or more continuing applications.

***Rejection of Claims 7 and 9-11 under 35 U.S.C. § 112, first paragraph***

Claims 7 and 10 were rejected under 35 U.S.C. §112, first paragraph, on the ground that the specification does not disclose any fragment of the nucleotide sequences 31 and 56 or nucleotide encoding the fragment of a polypeptide comprising the amino acid sequence of SEQ

ID No:6, or a nucleotide which encodes a naturally occurring allelic variant of a polypeptide comprising the amino acid sequence of SEQ ID No:6.

Applicants respectfully traverse this rejection. However, in the interest of expediting prosecution, Applicants claims 7 and 9-11 have been cancelled, and claims 12-18 have been amended, and withdrawal of the rejection is therefore requested. Applicants reserve the right to pursue the subject matter of the cancelled claims in a continuing application(s).

***Rejection of Claims 7 and 10 under 35 USC §102***

Claim 7 was rejected as anticipated by Tomalski et al. (U.S. Patent NO: 5,266,317) on the ground that the sequence described by Tomalski et al., reads on the fragments comprising 10 or more nucleotides of the sequences set forth in SEQ ID NO: 31 or 56. This rejection has been obviated by the cancellation of claim 7, and withdrawal thereof is respectfully requested.

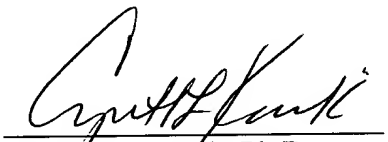
Claim 10 was rejected as anticipated by Grotendorst (U.S. Patent NO: 5,770,209) on the ground that Gortendorst discloses a polypeptide comprising at least 5 contiguous amino acid residues of SEQ ID NO:6. Applicants respectfully submit that, in view of Applicants' cancellation of claim 11, this rejection has been obviated.

**CONCLUSION**

Reconsideration and allowance of all the pending claims is respectfully requested. If a telephone conversation with Applicants' attorney would expedite prosecution of the above-identified application, the Examiner is urged to call the undersigned at (617) 227-7400.

Respectfully submitted,

LAHIVE & COCKFIELD, LLP



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Dated: November 27, 2001

## APPENDIX A

## VERSION WITH MARKINGS TO SHOW CHANGES MADE

Claims 7, 9, 10 and 11 have been cancelled, and claims 12-14 and 16 have been amended as follows:

~~7. An isolated nucleic acid molecule comprising a fragment of the nucleotide sequence set forth in SEQ ID NO:31 or 56, wherein the fragment comprises at least 10 nucleotides.~~

~~9. An isolated nucleic acid molecule which encodes a naturally occurring allelic variant of a polypeptide comprising the amino acid sequence set forth in SEQ ID NO:6.~~

~~10. An isolated nucleic acid molecule which encodes a fragment of a polypeptide comprising the amino acid sequence in of SEQ ID NO:6, wherein the fragment comprises at least 5 contiguous amino acid residues of the amino acid sequence of SEQ ID NO:6.~~

~~11. An isolated nucleic acid molecule which hybridizes to the nucleic acid molecule of any one of claims 6, 7, 8, 9, or 10 under stringent conditions.~~

12. An isolated nucleic acid molecule comprising a nucleotide sequence which is complementary to the nucleotide sequence of the nucleic acid molecule of any one of claims 6~~, 7,~~ or 8, ~~9, or 10~~.

13. An isolated nucleic acid molecule comprising the nucleic acid molecule of any one of claims 6~~, 7,~~ or 8, ~~9, or 10~~, and a nucleotide sequence encoding a heterologous polypeptide.

14. An isolated nucleic acid molecule of claims 6~~, 7,~~ or 8, ~~9, or 10~~, wherein said nucleic acid molecule is operably linked to at least one expression control sequence.

16. A vector comprising the nucleic acid molecule of any one of claims 6~~, 7,~~ or 8, ~~9, or 10~~.